

CLAIMS

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SEP 14 2007

1.- (CURRENTLY AMENDED) ~~INTERNAL DEVICE PROJECTOR OF IMAGES~~
~~ON POLYHEDRONS WITH POLARIZABLE GLASS FACES~~ consisting of

A system for projecting images on inscribed polyhedrons having polarizable faces,

5 comprising:

-an inner rear projector or bunch of projectors for projecting of images such as pictures
or movies;

-on several screens joint in a polyhedron structure comprising essentially characterised
by being an apparatus projector or a bunch of projectors located in the inner polyhedron
10 of two or more polyhedral bodies inscribed polyhedron bodies, or contained each one
in another bigger that contains it, concentric or not, the inner rear projector or bunch of
projectors being located in the most inner polyhedron; wherein,

-the whose faces of each polyhedron body are being screens separated between them
and made of a translucent crystal formed by two sheets of glass, methacrylate or any
15 other multilaminar material with the a liquid between them polarizable by an electrical
current for making the screen to that make it become transparent when electrical current
is applied and become or it is made translucent when the electrical current stops;

-a transparent screen lets an image or a portion of image pass through it toward the next
screen or outside the polyhedron structure and a translucent screen forms the image or a
20 portion of image,

-an image or a portion of an image can be formed on one or another corresponding
screen so as to modify the three-dimensional location in the space of an image or a
portion of an image;

The projectors can be or not associated with a system of multidirectional lens or mirrors
25 or independent auxiliary projectors to allow the projection directly, by reflection or by

~~an auxiliary projection of the same image on all the faces of every glass polyhedron from the inside. The glass polarization and depolarisation allows the spectator to see the image successively in any of the glass polyhedrons contained or inscribed between them combining the transparency state of the faces that are not used as screens of retro projection with the translucent state of those that are used as screens, modifying the three dimensional location in the space of the image simultaneously in every face of each polyhedron or in those selected as screens without the spectator has accessible sight of the images projector since it is located inside and an activated screen is always between the spectator and the projector or as the case may be the projector is hideable in order to make it disappear if all the screens are polarized and made transparent;~~

an spectator is allowed to see an image or a portion of an image on one or another of the corresponding screens of the polyhedron bodies without seeing the inner rear projector or bunch of projectors since a translucent screen is always between the spectator and said inner rear projector or bunch of projectors or all the screens become translucent;

the system is able of obtaining luminic, three-dimensional and dynamic effects able of for holding the spectator attention at high-degree with an advertising, didactic or entertainment aim.

2.- (CURRENTLY AMENDED) ~~INTERNAL DEVICE PROJECTOR OF IMAGES ON POLYHEDRONS WITH POLARIZABLE GLASS FACES~~ The system according to claim 1 ~~that is essentially characterised by being an apparatus wherein the inner rear projector or a bunch or projectors located in the inner polyhedron of two or more polyhedral regular bodies in the same way inscribed each one in another bigger that contains it, concentric or not, whose faces are parallel and separated between them~~

remaining inscribed into the emitter angle of projection of light, so that the same image

~~is projected directly on every face of each glass polyhedron from the inside according to the transparent or translucent state of each one. is associated with a system of multidirectional lens or mirrors or independent auxiliary projectors in the case in which the faces of the polyhedron bodies are not parallel or the polyhedron bodies are~~
5 conjugated or irregular.

3.- (CURRENTLY AMENDED) ~~INTERNAL DEVICE PROJECTOR OF IMAGES ON POLYHEDRONS WITH POLARIZABLE GLASS FACES~~ The system according to claim 1 ~~that is essentially characterised by being wherein~~ the transparent or translucent state of a screen is activated ~~each polyhedron activable~~ into a sequence by
10 means of a system of luminic, acoustic or thermal sensors which reacts to a stimulus or external agent, associated or not to a computer able to programme the polarization of each screen glass by means of an electrical current and to select the images to emit by the inner rear projector or bunch of projectors.

4.- (CURRENTLY AMENDED) A projection PROJECTOR PROCEDURE utilizing a
15 system for projecting images on inscribed polyhedrons having polarizable faces, comprising:

-an inner rear projector or bunch of projectors for projecting images such as pictures or movies;

-a polyhedron structure comprising two or more inscribed polyhedron bodies,
20 concentric or not, the inner rear projector or bunch of projectors being located in the most inner polyhedron; wherein,

~~to the projection of images by retro-projection essentially characterised by consisting of a procedure of combined utilization and of association between a projector and a set of multiple multilaminar screens~~ the faces of each polyhedron body being screens

25 formed by two sheets of glass, methacrylate or any other transparent multilaminar

material with a the liquid between them polarizable ~~the sheets liable to become transparent or translucent by the action of an electrical current for making the screen to become transparent when electrical current is applied and become translucent when the current stops,~~

- 5 ~~In this projection procedure the source of images will be located inside the inner polyhedron of two or more hollow polyhedrons preferably regular with the same shape though irregular or with different shape polyhedrons could be used if they are provided with lens, mirrors or auxiliary projectors of redirection of images placed in those faces of each polyhedron that are not used as screens in order to make invisible the auxiliary~~
- 10 ~~means to the spectator, being the polyhedrons arranged in a way that each one is interior or inscribed in relation to the next one that circumscribes it with separation between its faces. In this way the faces of each polyhedron used as screens will be preferably parallel total or partially inscribed into the luminic angle of projection of the images, though in certain cases the inscribed polyhedrons could be conjugated or have their~~
- 15 ~~faces in angle with regard to those of the circumscribed polyhedron and in that case they will have to be associated to a complex system of lens, mirrors or other optical means that redirect the images by reflection to the next polyhedron or to have auxiliary independent projectors. When the passing of the electrical current is activated modifying the screens translucent or transparent state it is produced to the spectator the~~
- 20 ~~essential visual effect of modifying the space location of the same image in successive planes of the polyhedrons faces, in a three dimensional system forming the image in the screen which is in the translucent state or letting the image pass without reflecting on the screens that are in a transparent state. The screens that are in a translucent state perform in such case for an outer observer as screens of retro projection of images~~
- 25 ~~emitted on it from the inside of the polyhedrons, but when a light electrical current is~~

made pass through it, they become transparent by polarization or another method. The images that come out of the device projector of images will pass freely through the glass that is in a transparent state and they will be projected on the faces of the next polyhedron that are translucent, directly or by reflection of the image by means of lens or auxiliary mirrors, being also able of being emitted on the faces of the circumscribed polyhedron by means of independent auxiliary projectors, so that they will be seen by an outer observer by retro projection in one or another screen and being contained each one in the bigger one, and the screen in which they are projected could be modified at an operator or the speetator himself choice. The proeedure uses an electrical or electronic device of dynamic effect to modify the translucent or transparent state of the polyhedrons by activating or deactivating the screens polarization, as a computer or any other system that regulates the electrical current of polarization of the glasses of each polyhedron, making it possible to project, from their inside, images in a suceessive way on any of the faces of each polyhedron, depending on if they are polarized or not, so that each polyhedron could act independently within a multiscreen three dimensional system. The projection can be carried out using an auxiliary system of lens, mirrors or independent auxiliary projectors to make sure that the same image emitted by a projector or a bunch of inner projectors is directed in a suitable way for its projection or it is projected from an auxiliary projector on each polyhedron faces, so that the inner projector of images in each case remains hidden to the spectator by the fact that an activated screen with images projected on it that will prevent the projector sight, will always be between the spectator and the projector. The projector could also be hideable in order to make it disappear from the inner polyhedron where it is contained to make it invisible in the case that the operator polarizes the faces of all the polyhedrons making them totally transparent. As the case may be the lens, the auxiliary mirrors of redirection

~~of the images or the independent auxiliary projectors will be installed in a face of the polyhedrons that is not used as screen, so that they remain hidden to the spectator eyesight of the images projected on those faces of the polyhedrons which are used as screens.~~

- 5 -a transparent screen lets an image or a portion of image pass through it toward the next screen or outside the polyhedron structure and a translucent screen forms the image or a portion of image;

- an image or a portion of an image can be formed on one or another corresponding screen so as to modify the tri-dimensional location in the space of an image or a portion
10 of image;

- an spectator is allowed to see an image or a portion of an image on one or another of the corresponding screens of the polyhedron bodies without seeing the inner rear projector or bunch of projectors since a translucent screen is always between the spectator and said inner rear projector or bunch of projectors or all the screens become
15 tranlucent;

- the procedure comprising the step of:
selectively polarize or depolarize by electrical current the liquid between the two sheets of a screen so as to cause the screen to become transparent or translucent in order to project an image or a portion of image, so as to obtain luminic, tri-dimensional and
20 dynamic effects for holding the spectator attention at high-degree with an advertising, didactic or entertainment aim.